PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	14 AUG 2008
Applicant's or agent's file reference 32000	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IL06/00795	09 July 2006 (09.07.2006)	07 July 2005 (07.07.2005)

International Patent Classification (IPC) or both national classification and IPC

IPC: **C07K 1/00**(2006.01);**C07H 21/02**(2006.01);**C12Q 1/64**(2006.01)
USPC: 530/350;536/23.1;435/9

Applicant

FULCRUM SP LTD.

1. This opinion contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☒	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	28 July 2008 (28.07.2008)	/Kathleen Kerr Bragdon/ Telephone No. 571-272-1600

Form PCT/ISA/237 (cover sheet) (April 2007)

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☒ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☒ on paper

☒ in electronic form

c. time of filing/furnishing

☒ contained in the international application as filed.

☒ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

4. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:
   - ☐ paid additional fees
   - ☒ paid additional fees under protest and, where applicable, the protest fee
   - ☐ paid additional fees under protest but the applicable protest fee was not paid
   - ☐ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
   - ☐ complied with
   - ☒ not complied with for the following reasons:

   See the lack of unity section of the International Search Report(Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:
   - ☐ all parts.
   - ☒ the parts relating to claims Nos. 1,2,5-11,19-25 and 28-41; SEQ ID NO: 2 and 3

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 10, 11, 23-25 and 32-38	YES
	Claims 1, 2, 5-9, 19-22, 28-31 and 39-41	NO
Inventive step (IS)	Claims 10, 11, 23-25 and 32-38	YES
	Claims 1,2, 5-9, 19-22, 28-31 and 39-41	NO
Industrial applicability (IA)	Claims 1,2,5-11,19-25 and 28-41	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1, 2, 5-9, 19-22, 28-31 and 39-41 lack novelty under PCT Article 33(2) as being anticipated by Wang et al. (Plant Physiology, 2002, Volume 130, pages 865-875). The exemplified SP1 polypeptide includes the polypeptide SEQ ID NO: 1 (see middle of page 1 in the instant specification). SP1 polypeptide also includes any polypeptide which is described as "isolated from aspen plants (Populus tremula), responds to a wide range of environmental stresses" (see page 1, lines 23-24 in the instant specification). Wang et al. teach a polypeptide 12.4 kDa SP1, "a stress-responsive" (see title), which is isolated by SDS-PAGE as shown in the Figure 5 on page 869. The said 12.4 kDa SP1 polypeptide sequence has been modified from the multimeric 116 kDa SP1 sequence, which is different from the 12.4 kDa monomeric unit (see Figure 5 on page 869). As shown by the protein bands migration pattern on SDS-PAGE, said isolated and sequence modified SP1 by Wang et al. is in a reversible molecular association with a substance [i.e., polyacrylamide used in PAGE (polyacrylamide gel electrophoresis)]. Thus, isolated and modified SP1 of Wang et al. meets all limitations in Claims 1 and 21. The polypeptide is expressed and self assembled into multimeric 116 kDa (see Figure 5 on page 869) and modified into a monomeric SP1, as described above; wherein the polypeptide of Wang et al. contains identical amino acid sequence of residues 2-103 of SEQ ID NO: 2; thus, meets the limitation of Claim 2. The SP1 sample of Wang et al. used in SDS-PAGE comprise water which can be considered as therapeutic, diagnostic or cosmetic agent; thus, meets the limitation of Claims 6-7, 28-29 and 39-41. The buffer used in SDS-PAGE electrophoresis of Wang et al. conducts electricity by the salts (an example of dielectrics) presented in the SDS running buffer solution which makes contact with the SP1 polypeptide of Wang et al. meets the limitation of Claims 8-9 and 30-31. The isolated and modified SP1 polypeptide of Wang et al. is boiling soluble and soluble in SDS detergent; wherein said SP1 has also "100% identical amino acid sequence to SEQ ID NO: 1 (see full amino acid sequence in Figure 1A, on page 866); thus, meets the limitation of Claims 19-20. Wang et al. also teach the SP1 is digested by protease which leaves multiple bands on SDS-PAGE gel, wherein the bands are comprised of many amino acids which is resistant to further V8 digestion. Thus, the SP1 of Wang et al. also meets the limitation of Claim21.

It is noted that Applicants requested Group 59 and Group 3 for additional groups to be searched. However, applicants paid only for one additional group to be searched (see the cover page of Remarks filed on 12/13/2007). The Examiner requested to clarify by selecting only one additional group (either Group 59 or Group 3) during telephone conversation on 6/23/2008. Applicants failed to clarify on record. The request search report of additional group(s) is further complicated by the Remarks filed on 12/13/2007 because the Group 3 is drawn to a genus of polypeptide including SEQ ID NO: 4 (see PCT/ISA/206 dated on 12/13/2007), but Applicants requsted a search report on SEQ ID NO: 3 by reciting the SEQ ID NO: 3 as a part of Group 3. The recited SEQ ID NO: 3 is Group II according to PCT/ISA/206. Therefore, the Examiner can not adequately determine which is the elected additional group for preparation of the instant search report. Thus, only the first Group has been searched and examined.

Claims 10, 11, 23-25 and 32-38 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest full length polypeptide of SEQ ID NO: 2 in Claim 2 (as applied above, Claim 2 also reads on fragments of SEQ ID NO:2; the recited translationally fused agents in Claims 10-11; or the further modification of SP1 by the disclosure in Claims 23-25 and 32-37.

Claim 1-2, 5-11, 19-25, and 28-41 meet the criteria set out in PCT Article 33(4), and thus satisfy industrial applicability because the subject matter claimed can be made or used in industry.